Bay Harbor Resort - East Park CKD
NPDES Permit Application
Section III – Part B.3 – Parameter Reporting Waiver Request

The outfall information effluent characteristics parameter report for the proposed outfall 001EP was calculated from data collected from the treated CKD leachate (pH adjusted) and the upgradient groundwater intercept wells in 2008 and 2009 at the East Park CKD. The maximum concentrations found in the leachate (after pH adjustment) and the groundwater were used in the calculations for all parameters. The flows used to calculate the concentrations in the co-mingled final effluent were 35,000 gal/d for the leachate and 150,000 gal/d for the intercepted groundwater (0.185 MGD final effluent) for an approximate 4 to 1 dilution of groundwater to leachate. The concentrations provided therefore represent a "worse case" discharge.

There are no analytical results available for total residual chlorine, oil and grease, or bacteria but based on the nature of the wastewater and the treatment system there is no reason to believe that there would be any of these parameters detected in the waste stream or the discharge. CMS Energy is therefore requesting a waiver from submittal of analytical results for these parameters.

Data Summary
CMS Land Company
(concentrations in ug/L, unless noted otherwise)

SUMMARY (UPGRADIENT WELL + FRAC TANK SOLUTION)				
	MINIMUM FINAL CONCENTRATION (mg/L)	MAXIMUM FINAL CONCENTRATION (mg/L)	MINIMUM POUNDS/DAY (@.185 MGD)	MAXIMUM POUNDS/DAY (@.185 MGD)
General Parameters				
Alkalinity, total	243	384	355	592
Biochemical Oxygen Demand (5-day)	0.09	20	0.14	31
Carbon, total organic	1.2	8	1.8	13
Chemical Oxygen Demand (COD)	1.9	5	2.8	7
Chloride (µg/L)	59.2	167	86	258
Hardness, total (µg/L)	264	774	385	1,195
Nitrogen, ammonia as N	0.013	0.172	0.02	0.266
Phosphorus total	0.008	0.074	0.012	0.115
Solids, total dissolved (µg/L)	191	915	279	1,412
Solids, total suspended	4.8	430	7	664
Sulfate (µg/L)	45	139	65	214
pH, standard units	0.007	--	0.011	--
Specific Conductance umhos@ 25°C	1.8	--	2.6	--
Dissolved oxygen, mg/L	0.0004	--	0.001	--
Temperature, degrees C	0.009	--	0.013	--
Metals				
Aluminum	0.17	3.3	0.25	5.1
Antimony	0.001	0.002	0.001	0.0037
Arsenic (µg/L)	0.002	0.005	0.004	0.008
Barium	0.041	0.278	0.061	0.43
Beryllium	0.001	0.001	0.001	0.0008
Cadmium (µg/L)	0.0004	0.0004	0.001	0.0007
Calcium	66	225	96	347
Chromium	0.004	0.006	0.006	0.009
Copper	0.002	0.006	0.003	0.010
Iron	0.22	3	0.323	4
Lead	0.001	0.001	0.002	0.002
Magnesium	14	50	20	78
Manganese	0.021	0.090	0.030	0.13
Mercury (µg/L)	0.00000	0.000006	0.00000	0.000009
Nickel	0.009	0.01	0.013	0.013
Potassium	29	167	43	257
Selenium	0.002	0.003	0.003	0.005
Silver	0.0001	0.0001	0.0002	0.0002
Sodium	13	90	19	138
Thallium	0.001	0.001	0.001	0.002
Vanadium	0.004	0.027	0.007	0.042
Zinc	0.022	0.066	0.033	0.102

Data Summary
CMS Land Company
(concentrations in ug/L, unless noted otherwise)

UPGRADIENT WELL AND FRAC TANK MINIMUM VALUES

	UPGRADIENT (Well #21 & #78; 2008 Data)	DOWNGRADIENT (FRAC TANK)	FINAL CONCENTRATION (µg/L)	FINAL CONCENTRATION (mg/L)	POUNDS/DAY (@ .185 MGD)
General Parameters					
Alkalinity, total	230,000	300,000	243,230	243	375
Biochemical Oxygen Demand (5-day)	N/A	<1000	95	0.09	0.15
Carbon, total organic	1,000	2,300	1,246	1.2	1.9
Chemical Oxygen Demand (COD)	N/A	10,000	1,890	1.9	2.9
Chloride (µg/L)	45,000	120,000	59,175	59.2	91
Hardness, total (µg/L)	320,000	22,000	263,678	264	407
Nitrogen, ammonia as N	<20	<50	13	0.013	0.02
Phosphorus total	<10	20.5	8	0.008	0.012
Solids, total dissolved (µg/L)	42,400	830,000	191,256	191	295
Solids, total suspended	4,400	6,700	4,835	4.8	7
Sulfate (µg/L)	25,000	130,000	44,845	45	65
pH, standard units	7	8.8	7	0.007	0.011
Specific Conductance umhos@ 25°C	643	6,569	1,763	1.8	2.7
Dissolved oxygen, mg/L	0.36	–	0.36	0.0004	0.001
Temperature, degrees C	8.79	–	9	0.009	0.014
Metals					
Aluminum	170	160	168	0.17	0.26
Antimony	<2.0	<2.0	1.0	0.001	0.002
Arsenic (µg/L)	<5.0	2.3	2	0.002	0.004
Barium	<100	4.8	41	0.041	0.064
Beryllium	<1.0	<1.0	0.5	0.001	0.001
Cadmium (µg/L)	<1.0	<0.20	0.4	0.0004	0.001
Calcium	80,000	4,300	65,693	66	101
Chromium	<10.0	<1.0	4.1	0.004	0.006
Copper	<4.0	<5.0	2	0.002	0.003
Iron	270	12	221	0.22	0.341
Lead	<3.0	<1.0	1.3	0.001	0.002
Magnesium	17,000	840	13,946	14	22
Manganese	<50	2.3	21	0.021	0.032
Mercury (µg/L)	<0.0005	0.000618	0.000320	0.00000	0.00000
Nickel	<20	<5.0	8.6	0.009	0.013
Potassium	1,200	150,000	29,323	29	45
Selenium	<5.0	1.4	2.3	0.002	0.004
Silver	<0.20	<0.5	0.13	0.0001	0.0002
Sodium	3,200	55,000	12,990	13	20
Thallium	<2.0	<2.0	1.0	0.001	0.002
Vanadium	<4.0	15	4	0.004	0.007
Zinc	<50	11	22	0.022	0.034

Note: 150,000 GAL/DAY COLLECTED FROM UPGRADIENT WELLS AND 35,000 GAL/DAY COLLECTED FROM LEACHATE COLLECTION SYSTEI

Data Summary
CMS Land Company
(concentrations in ug/L, unless noted otherwise)

UPGRADIENT WELL AND FRAC TANK MAXIMUM VALUES

	UPGRADIENT (Well #21 & #78; 2008 Data)	DOWNGRADIENT (FRAC TANK)	FINAL CONCENTRATION (µg/L)	FINAL CONCENTRATION (mg/L)	POUNDS/DAY (@ .185 MGD)
General Parameters					
Alkalinity, total	380,000	400,000	383,780	384	592
Biochemical Oxygen Demand (5-day)	N/A	105,700	19,977	20	31
Carbon, total organic	2,200	35,000	8399.2	8	13
Chemical Oxygen Demand (COD)	N/A	25,000	4,725	5	7
Chloride (µg/L)	150,000	240,000	167,010	167	258
Hardness, total (µg/L)	920,000	150,000	774,470	774	1,195
Nitrogen, ammonia as N	61	650	172.321	0.172	0.266
Phosphorus total	83	39.3	74.5	0.074	0.115
Solids, total dissolved (µg/L)	616,000	2,200,000	915,376	915	1,412
Solids, total suspended	521,000	40,300	430,148	430	664
Sulfate (µg/L)	52,000	510,000	138,562	139	214
pH, standard units	8	11.8	8.4	--	--
Specific Conductance umhos@ 25°C	1,075	7,526	2294	--	--
Dissolved oxygen, mg/L	2.7	--	2.7	--	--
Temperature, degrees C	9.6	--	9.6	--	--
Metals					
Aluminum	3,600	2,100	3,317	3.3	5.1
Antimony	<2.0	8.4	2.4	0.002	0.0037
Arsenic (µg/L)	<5.0	16	5.05	0.005	0.008
Barium	340	13.0	278.2	0.278	0.43
Beryllium	<1.0	<1.0	0.5	0.001	0.0008
Cadmium (µg/L)	<1.0	<0.20	0.42	0.0004	0.0007
Calcium	270,000	30,000	224,640	225	347
Chromium	<10	11	6.1	0.006	0.009
Copper	5.9	8	6.3	0.006	0.010
Iron	3,200	55	2,606	3	4
Lead	<3.0	1.2	1.44	0.001	0.002
Magnesium	59,000	14,000	50,495	50	78
Manganese	110	4.1	90.0	0.090	0.13
Mercury (µg/L)	0.00831	0.0302	0.01244721	0.000012	0.000019
Nickel	<20	<5	8.6	0.01	0.013
Potassium	5,000	860,000	166,595	167	257
Selenium	<5.0	6.9	3.3	0.003	0.005
Silver	<0.20	<0.50	0.13	0.0001	0.0002
Sodium	85,000	110,000	89,725	90	138
Thallium	<2.0	<2.0	1	0.001	0.002
Vanadium	5.8	120	27.4	0.027	0.042
Zinc	75	28	66	0.066	0.102

Note: 150,000 GAL/DAY COLLECTED FROM UPGRADIENT WELLS AND 35,000 GAL/DAY COLLECTED FROM LEACHATE COLLECTION SYSTEM

Michigan Department of Environmental Quality- Water Bureau

WASTEWATER DISCHARGE PERMIT APPLICATION

SECTION III - Industrial and Commercial Wastewater

B. Outfall Information

PLEASE TYPE OR PRINT

FACILITY NAME	NPDES PERMIT NUMBER	OUTFALL NUMBER
Bay Harbor Resort - East Park CKD		001EP

3. EFFLUENT CHARACTERISTICS - CONVENTIONAL POLLUTANTS - Instructions for this item are on Page 4 of the Appendix.

☐ Check this box if additional information is included as an attachment. To submit additional information, see Page ii, Item 3.

Please Note: Rule 323.1062 allows the use of either *Escherichia Coli* or Fecal Coliform Bacteria as an indicator that effluent has been disinfected. The MDEQ will use the indicator selected below in the permit issued based on this Application. ☐ Use *Escherichia Coli* as an indicator of disinfection. ☐ Use Fecal Coliform Bacteria as an indicator of disinfection.

Submitted via DMR's	Waiver Request and the Rationale Behind the Request	Parameter	Maximum Monthly Concentration	Maximum Daily Concentration	Units	Number of Analyses	Sample Type
☐		Biochemical Oxygen Demand – five day (BOD_5)		20	mg/l	4	☒ Grab ☐ 24 Hr Comp
☐		Chemical Oxygen Demand (COD)		5	mg/l	4	☒ Grab ☐ 24 Hr Comp
☐		Total Organic Carbon (TOC)		8	mg/l	4	☒ Grab ☐ 24 Hr Comp
☐		Ammonia Nitrogen (as N)		0.172	mg/l	4	☒ Grab ☐ 24 Hr Comp
☐		Total Suspended Solids		430	mg/l	4	☒ Grab ☐ 24 Hr Comp
☐	NA	Total Dissolved Solids		915	mg/l	4	☒ Grab ☐ 24 Hr Comp
☐	NA	Total Phosphorus (as P)		0.074	mg/l	4	☒ Grab ☐ 24 Hr Comp
☐	NA	Fecal Coliform Bacteria (report geometric means)		Maximum-7day NA	counts/100ml		Grab
☐	NA	*Escherichia Coli* (report geometric means)		Maximum-7day NA	counts/100 ml		Grab
☐	NA	Total Residual Chlorine			☐ mg/l ☐ µg/l		Grab
☐	NA	Dissolved Oxygen	~~Do Not Use~~	Minimum daily 3	mg/l	4	☒ Grab ☐ 24 Hr Comp
☐		pH (report maximum and minimum of individual samples)	Minimum 8.0	Maximum 8.4	standard units	4	☒ Grab ☐ 24 Hr Comp
☐		Temperature, Summer			☐ °F ☐ °C		☐ Grab ☐ 24 Hr Comp
☐		Temperature, Winter		10	☐ °F ☒ °C	2	☒ Grab ☐ 24 Hr Comp
☐	NA	Oil & Grease		NA	mg/l		Grab

Michigan Department of Environmental Quality- Water Bureau

WASTEWATER DISCHARGE PERMIT APPLICATION

SECTION III - Industrial and Commercial Wastewater

B. Outfall Information

PLEASE TYPE OR PRINT

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Bay Harbor Resort - East Park CKD		001EP

Note: For questions on this page, Tables 1-5 are found in the Appendix.

4. PRIMARY INDUSTRY PRIORITY POLLUTANT INFORMATION

Existing primary industries that discharge process wastewater are required to submit the results of at least one permittee-collected effluent analysis for selected organic pollutants identified in Table 2 (as determined from Table 1, Testing Requirements for Organic Toxic Pollutants by Industrial Category), and all of the pollutants identified in Table 3. Existing primary industries are required to also provide the results of at least one permittee-collected effluent analysis for any other chemical listed in Table 2 known or believed to be present in the facility's effluent.

In addition, submit the results of all other effluent analyses performed within the last three years for any chemical listed in Tables 2 and 3.

New primary industries that propose to discharge process wastewater are required to provide an estimated effluent concentration for any chemical listed in Tables 2 and 3 expected to be present in the facility's effluent.

5. DIOXIN AND FURAN CONGENER INFORMATION

Existing industries that use or manufacture 2,3,5-trichlorophenoxy acetic acid (2,4,5-T); 2-(2,3,5-trichlorophenoxy) propanoic acid, (Silvex, 2,3,5-TP); 2-(2,4,5-trichlorophenoxy) ethyl 2,2-dichloropropionate (Erbon); 0,0-dimethyl 0-(2,4,5-trichlorophenyl) phosphorothionate (Ronnel); 2,4,5-trichlorophenol (TCP); or hexachlorophrene (HCP), or knows or has reason to believe that 2,3,7,8-Tetrachlorodibenzo-p-dioxin (TCDD) is present in the facility's effluent, are required to submit the results of at least one effluent analysis for the dioxin and furan congeners listed in Table 6. All effluent analyses for dioxin and furan congeners shall be conducted using USEPA Method 1613.

In addition, submit the results of all other effluent analyses performed within the last three years for any dioxin and furan congener listed in Table 6.

New industries that expect to use or manufacture 2,3,5-trichlorophenoxy acetic acid (2,4,5-T); 2-(2,3,5-trichlorophenoxy) propanoic acid (Silvex, 2,3,5-TP); 2-(2,4,5-trichlorophenoxy) ethyl 2,2-dichloropropionate (Erbon); 0,0-dimethyl 0-(2,4,5-trichlorophenyl) phosphorothionate (Ronnel); 2,4,5-trichlorophenol (TCP); or hexachlorophrene (HCP), or knows or has reason to believe that 2,3,7,8-Tetrachlorodibenzo-p-dioxin (TCDD) is present in the facility's effluent, shall provide estimated effluent concentrations for the dioxin and furan congeners listed in Table 6.

6. OTHER INDUSTRY PRIORITY POLLUTANT INFORMATION

Existing secondary industries, or existing primary industries that discharge nonprocess wastewater, are required to submit the results of at least one effluent analysis for any chemical listed in Tables 2 and 3 known or believed to be present in the facility's effluent.

In addition, submit the results of all other effluent analyses performed within the last three years for any chemical listed in Tables 2 and 3.

New secondary industries, or new primary industries that propose to discharge nonprocess wastewater, are required to provide an estimated effluent concentration for any chemical listed in Tables 2 and 3 expected to be present in the facility's effluent.

7. ADDITIONAL TOXIC AND OTHER POLLUTANT INFORMATION

All existing industries, regardless of discharge type, are required to provide the results of at least one analysis for any chemical listed in Table 4 known or believed to be present in the facility's effluent, and a measured or estimated effluent concentration for any chemical listed in Table 5 known or believed to be present in the facility's effluent. In addition, submit the results of any effluent analysis performed within the last three years for any chemical listed in Tables 4 and 5.

New industries, regardless of discharge type, are required to provide an estimated effluent concentration for any chemical listed in Tables 4 and 5 expected to be present in the facility's effluent.

8. INJURIOUS CHEMICALS NOT PREVIOUSLY REPORTED

New or existing industries, regardless of discharge type, are required to provide a measured or estimated effluent concentration for any toxic or otherwise injurious chemicals known or believed to be present in the facility's effluent that have not been previously identified in this Application. Quantitative effluent data for these chemicals that is less than five years old shall be reported.

NOTE: All effluent data submitted in response to questions 4, 5, 6, 7, and 8 above should be recorded on Page 23. To submit additional information, see Page ii, Item 3. If the effluent concentrations are estimated, place an "E in the "Analytical Method" column. The following fields shall be completed for each data row: Parameter, CAS No., Concentration(s), Sample Type, and Analytical Method. For analytical test requirements, see Page ii, Item 5.

If Alternate Test Procedures have been approved for any parameter listed above (Items 4 through 8), see Page ii, Item 5 for additional instructions.

Michigan Department of Environmental Quality- Water Bureau

WASTEWATER DISCHARGE PERMIT APPLICATION

SECTION III - Industrial and Commercial Wastewater

B. Outfall Information

PLEASE TYPE OR PRINT

FACILITY NAME	NPDES PERMIT NUMBER	OUTFALL NUMBER
Bay Harbor Resort - East Park CKD		001EP

Submitted via DMR's	SAMPLE DATE →		Various	Calc	Min	Max		
	PARAMETER	CAS No.	Conc. (µg/l)	Conc. (µg/l)	Conc. (µg/l)	Conc. (µg/l)	Sample Type	Analytical Method
☐	Aluminum				170	3,300	Grab	
☐	Antimony				1.0	2.0	Grab	
☐	Arsenic				2.0	5.0	Grab	
☐	Barium				41.0	278.0	Grab	
☐	Beryllium				1.0	1.0	Grab	
☐	Cadmium				0.4	0.4	Grab	
☐	Calcium				66,000	225,000	Grab	
☐	Chromium				4.0	6.0	Grab	
☐	Copper				2.0	6.0	Grab	
☐	Iron				220.0	3,3000	Grab	
☐	Lead				1.0	1.0	Grab	
☐	Magnesium				14,000	50,000	Grab	
☐	Manganese				21.0	90.0	Grab	
☐	Mercury				0.000	0.006	Grab	1631E
☐	Nickel				9.0	10	Grab	
☐	Potassium				29,000	167,000	Grab	
☐	Selenium				2.0	3.0	Grab	
☐	Silver				0.10	0.10	Grab	
☐	Sodium				13,000	90,000	Grab	
☐	Thallium				1.0	1.0	Grab	
☐	Vanadium				4.0	27	Grab	200.8
☐	Zinc				22.0	66.0	Grab	
☐	Hardness - groundwater					320,000		
☐	Hardness - Little Traverse Bay					130,750		
☐								
☐								
☐								